TOSHIBA

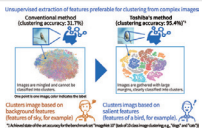
Toshiba's AI Technologies

Here, we will introduce the AI technologies that Toshiba has researched and developed for many years.
A variety of these AI technologies are presented on the website, classified into categories such as media data analysis and anomaly detection.

For details, please refer to the "Toshiba AI Technology Catalog" website.
https://www.global.toshiba/ww/technology/corporate/ai.html

Media data analysis

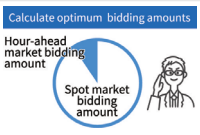
Unsupervised image clustering: IDFD



Automatically classifying images of similar defects during visual inspections reduces the analyses time required to investigate the causes of defects.

Operation and Control

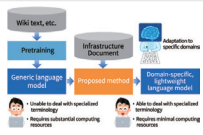
Optimizing electric power market transactions



Conduct electric power transactions that maximize profits while taking into account the risks of fluctuations in renewable energy volumes and market prices

Language media analysis/Knowledge organization

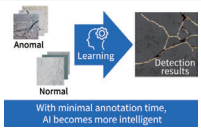
AI that Understands Infrastructure Documents



Unlock the knowledge of skilled workers from technical documents to achieve advanced infrastructure maintenance (e.g., quickly decide troubleshooting methods).

Media recognition/Anomaly detection

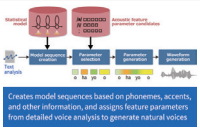
Model-based image anomaly detection



AI that can detect pixel-level specified anomalies (e.g., cracks, rust) by training with images annotated for the existence of anomalies per image

Speech dialogue/Media transformation/Media generation

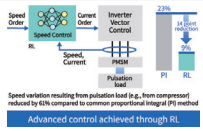
RECAIUS™ speech synthesis technology



Improves naturalness and speaker similarity of synthesized voice using a speech synthesis method based on statistical parameter selection.

Operation and Control

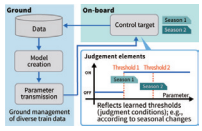
Automatic construction of PMSM drive logic using reinforcement learning (RL)



RL achieves advanced control based on a data-driven approach.

Operation and Control

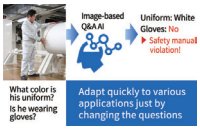
Automated machine learning for train A/C operation models that adapt to changes in the environment



This technology helps to provide comfortable spaces on trains in keeping with changes in the environment (e.g., seasonal changes).

Anomaly detection/Status estimation/Media recognition

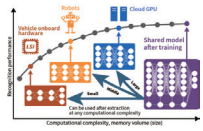
Risk detection based on images and inspection questions



Automatically detects risky behaviors or dangerous situations using AI that answers questions about the image.

Placement and Design

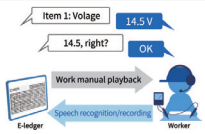
Scalable technologies for deep neural networks



Adjusts AI performance and computational complexity in keeping with the usage environment

Media recognition

Work records by speech (figure/item input)



Using voice-operated work manual playback and results input, this system allows hands-free work records to be kept quickly and safely.

Indexing

AI Quality Card Generation System for Automatically Visualizing AI Quality

Automatically creates a quality card summarizing quality info in a convincing, easy-to-understand format.

Media recognition/Media data analysis

Few-shot object detection

AI detects new objects quickly and easily, by registering just a single image.

The above are just a few examples. Many AI technologies are introduced on the website.